1. Project Title:	2. Date:	3: Person Responsible
SPHENIX	01/15/2015	D. Phillips

4. WBS Element Code	5. WBS Element Title
1.02	sPHENIX Decommissioning

6. Index Line Number:	7. Revision Number and Authorization:	8: Rev. Date

9. Approved Changes

9. Element Task Description

COST CONTENT:

Summary Item - Rolls up costs from WBS Items 1.02.01 and 1.02.02

TECHNICAL CONTENT:

Includes project management and oversight of decommissioning efforts, preparation for decommissioning, disassembly and disposition of the existing PHENIX detector to make the PHENIX 1008 complex ready to accommodate the sPHENIX detector.

WORK STATEMENT:

See Subtasks

1. Project Title:	2. Date:	3: Person Responsible

SPHENIX	01/15/2015	P. Giannotti

4. WBS Element Code	5. WBS Element Title
1.02.01	Decommissioning Preparation and Oversight

6. Index Line Number:	7. Revision Number and Authorization:	8: Rev. Date

9. Approved Changes

9. Element Task Description

COST CONTENT:

Labor for project management of decommissioning based on Subsystem scientist with 25% of time and subsystem engineer 50% time spent on project management of this task. For all other tasks Labor and material costs are estimated based on similar projects and activities at CAD. The costs in this section are for materials and contract labor costs incurred prior to the actual decommissioning effort. (e.g. lifting fixtures, specialized tools, storage facility shelves, etc.)

TECHNICAL CONTENT:

This task includes all scientific, engineering and technical staff efforts to plan, implement and supervise all aspects of the design, procurement, construction, assembly, testing and review of procedures, equipment associated with decommissioning of PHENIX, and identification and preparation of storage facilities for proposed disposition of PHENIX components which will be retained for future use.

WORK STATEMENT:

The tasks associated with this effort are as follows:

Subsystem Project Management - Liaison Physicist and Liaison Engineer
Deliverables: none

Decommissioning Plan - Sum of all conceptual efforts to prepare for the decommissioning of PHENIX.
Deliverables: written plans

Lifting Fixture identification/design - For each subsystem to be decommissioned the plan is analyzed and the need for lifting fixtures is identified and appropriate design documentation is prepared. In some cases no fixtures will be needed, in some cases the fixtures exist and can be used as is, in other

cases existing fixtures will be need to be modified.

Deliverables: fabricated/identified lifting fixtures as required by the plan. (estimate 3 new lifting fixtures and 10 existing fixtures)

Lifting Fixture certification - Certification tests for each identified new lifting fixture or modified existing fixture, or re-certification for existing fixtures not requiring modification.

Deliverables: Certified lifting fixtures as required by the plan. (estimate 3 new lifting fixtures and 10 existing fixtures)

Storage area identification - For each subsystem to be decommissioned for which a storage area will be needed (i.e. decommissioned equipment to be retained for future disposition.) analyze the area needed and identify the area to be so utilized. Areas for storage will be needed for racks, Rich East & West, EMCal modules, beampipe sections, MPC's, MPC-Ex's, Aerogel, FVTX/VTX, BBC's, RPC1's,

Deliverables: Available storage space Identified -MOU for use of these spaces.

Storage area prep - For each storage area identified, determine the effort and materials (e.g. storage shelves) needed to serve the subsystem associated with that area.

Deliverables: Work plan/permit for each space identified, equipment identified and procured

Work Permits and Procedures -
Effort required to develop detailed work procedures, work permits and related documentation including review and approval.

Deliverables: Approved work plans/permits for all decommissioning tasks (estimate 10 WP's)

Design and Safety Reviews - As determined by the decommissioning plan to assure the efficient, effective and safe accomplishment of the decommissioning effort.

Deliverables: Completion of all review action items

1. Project Title:	2. Date:	3: Person Responsible
SPHENIX	01/15/2015	P. Giannotti

4. WBS Element Code	5. WBS Element Title
1.02.02	Disassembly and Disposition of the PHENIX Detector

6. Index Line Number:	7. Revision Number and Authorization:	8: Rev. Date

9. Approved Changes

9. Element Task Description

COST CONTENT:

Labor, contracted labor and material costs for all efforts to remove PHENIX detector components as necessary to make way for sPHENIX upgrade. Includes all efforts after the end of run 16 until the IR is ready to begin sPHENIX installation.

TECHNICAL CONTENT:

All efforts to remove PHENIX detector components as necessary to make way for sPHENIX upgrade. Includes all efforts after the end of run 16 until the IR is ready to begin sPHENIX installation. Includes disposition (discard or store for future use) of all relevant PHENIX subsystems.

WORK STATEMENT:

The tasks required to decommission PHENIX are defined as follows:

Initial Tasks to prep for Decommissioning after run 16:

> This includes all of the tasks normally undertaken at the start of each shutdown period between PHENIX runs to open the IR and separate the carriages to allow work on the various subsystems. Tasks include shield wall removal, MuID collar removal, Gas purge, Carriage preparation, disconnects and moves

Dismantle EC:

This includes all of the effort required to remove all of the subsystems, support components and services from the EC and to dismantle and the EC itself, plus disposition of all of components. Subsystems and components include racks, Drift Chamber, Rich, TOF East, PC1 east, PC3 east, TEC, PbGl, PbSc, and EMCal. Racks, Rich PMT's, EMCal modules are to be preserved for future use. All else is to be discarded/scrapped.

Remove and Preserve Beampipe:

This includes all of the effort required to remove all of the beampipe sections and support components, plus disposition of all of components. All beampipe components are to be preserved for sPHENIX use.

Dismantle MMS:

This includes all of the effort required to remove all of the subsystems and support components from the MMS and to dismantle and the MMS itself, plus disposition of all of components. Subsystems and components include racks, MPC South, MPC-Ex south, MuTr and Muon Trigger stations 1, 2 and 3 south, "eyebrow" platform and Muon Trigger platform. Racks, MPC , MPC-Ex and platforms are to be preserved for future use. All else is to be discarded/scrapped.

Dismantle WC:

This includes all of the effort required to remove all of the subsystems and support components from the WC and to dismantle and the WC itself, plus disposition of all of components. Subsystems and components include racks, Drift Chamber, Rich, TOF west, PC1, PC2 and PC3 west, PC3 west, PbSc, and EMCal. Racks, Rich PMT's, EMCal modules are to be preserved for future use. All else is to be discarded/scrapped.

Dismantle CM:

This includes all of the effort required to remove all of the subsystems and support components from the CM and to dismantle and the CM itself, plus disposition of all of components. Subsystems and components include racks, BBC's, RPC1's, FVTX/VTX, and upper rack platform, which are all to be preserved for future use. All else is to be discarded/scrapped.

Dismantle MMN:

This includes all of the effort required to remove all of the subsystems and support components from the MMN and to dismantle and the MMN itself, plus disposition of all of components. Subsystems and components include racks, MPC north, MPC-Ex north, MuTr and Muon Trigger stations 1, 2 and 3 north, MMS upper platform and Muon Trigger platform. Racks, MPC , MPC-Ex and platforms are to be preserved for future use. All else is to be

discarded/scrapped.

IR Support Structures and Non-IR decommissioning:

This includes all of the effort required to remove all of the subsystems and support components not on the major carriages in the IR, and other PHENIX subsystems not in the IR requiring decommissioning, plus the disposition of all these components. Unless otherwise determined during detailed planning stages all non-IR infrastructure shall be decommissioned in place. sPHENIX may use much of this, but if not (e.g. gas piping and equipment used in PHENIX but not needed for sPHENIX), this equipment structures etc. appropriately cleaned, capped, covered or otherwise prepared for storage in place until needed in the future.